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TELNET Extended ASCII Option 1

1. Command Name and code. 2

EXTEND-ASCII 17 2a

2. Command Meanings. 3

IAC WILL EXTEND-ASCII 3a

The sender of this command requests permission to begin transmitting, or confirms that it may now begin transmitting extended ASCII, where additional 'control' bits are added to normal ASCII, which are treated specially by certain programs on the host computer. 3a1

IAC WON'T EXTEND-ASCII 3b

If the connection is already being operated in extended ASCII mode, the sender of this command demands that the reciever begin transmitting data characters in standard NVT ASCII. If the connection is not already being operated in extended ASCII mode, The sender of this command refuses to begin transmitting extended ASCII. 3b1

IAC DO EXTEND-ASCII 3c

The sender of this command requests that the reciever begin transmitting, or confirms that the reciever of this command is allowed to begin transmitting extended ASCII. 3c1

IAC DON'T EXTEND-ASCII 3d

The sender of this command demands that the reciever of this command stop or not start transmitting data in extended ASCII mode. 3d1

IAC SB EXTASC
<high order bits (bits 15-8)> <low order bits (bits 7-0)>
IAC SE 3e

This command transmits an extended ASCII character in the form of two 8-bit bytes. Each 8-bit byte contains 8 data bits. 3e1

3. Default 4

DON'T EXTEND-ASCII 4a

WON'T EXTEND-ASCII 4b

i.e. only use standard NVT ASCII 4b1

4. Motivation. 5

Several sites on the net, for example, SU-AI and MIT-AI, use keyboards which use almost all 128 characters as printable characters, and use one or more additional bits as 'control' bits as command modifiers or to separate textual input from command input to programs. Without these additional bits, several characters cannot be entered as text because they are used for control purposes, such as the greek letter 'beta' which on a TELNET connection is Control-C and is used for stopping ones job. In addition there are several commonly used programs at these sites require these additional bits to be run effectively. Hence it is necessary to provide some means of sending characters larger than 8 bits wide. 5a

5. Description of the option. 6

This option is to allow the transmission of extended ASCII. 6a

Experience has shown that most of the time, 7-bit ASCII is typed, with an occassional 'control' character used. Hence, it is expected normal NVT ASCII would be used for 7-bit ASCII and that extended- ASCII be sent as an escape character sequence. 6b

The exact meaning of these additional bits depends on the user program. At SU-AI and at MIT-AI, the first two bits beyond the normal 7-bit ASCII are passed on to the user program and are denoted as follows. 6c

Bit 8 (or 200 octal) is the CONTROL bit
Bit 9 (or 400 octal) is the META bit 6c1

(Note that 'CONTROL' is used in a non-standard way here; that is, it usually refers to codes 0-37 in NVT ASCII. CONTROL and META are echoed by prefixing the normal character with 013 (integral symbol) for CONTROL and 014 (plus-minus) for META. If both are present, it is known as CONTROL-META and echoed as 013 014 7-bit character.) 6d

6. Description of Stanford Extended ASCII Characters 7

In this section, the extended graphic character set used at SU-AI is described for reference, although this specific character set is not required as part of the extended ASCII Telnet option. Characters described as "hidden" are alternate graphic interpretations of codes normally used as format effectors, used by certain typesetting programs. 7a

Code	Graphic represented	
		7a1
000	null (hidden vertically centered dot)	7a2
001	downward arrow	7a3
002	alpha (all Greek letters are lowercase)	7a4
003	beta	7a5
004	logical and (caret)	7a6
005	logical not (dash with downward extension)	7a7
006	epsilon	7a8
007	pi	7a9
010	lambda	7a10
011	tab (hidden gamma)	7a11
012	linefeed (hidden delta)	7a12
013	vertical tab (hidden integral)	7a13
014	formfeed (hidden plus-minus)	7a14
015	carriage return (hidden circled-plus)	7a15
016	infinity	7a16
017	del (partial differential)	7a17
020	proper subset (right-opening horseshoe)	7a18
021	proper superset (left-opening horseshoe)	7a19
022	intersection (down-opening horseshoe)	7a20
023	union (up-opening horseshoe)	7a21
024	universal quantifier (upside-down A)	7a22
025	existential quantifier (backwards E)	7a23
026	circled-times	7a24
027	left-right double headed arrow	7a25
030	underbar	7a26
031	right pointing arrow	7a27

032	tilde	7a28
033	not-equal	7a29
034	less-than-or-equal	7a30
035	greater-than-or-equal	7a31
036	equivalence (column of 3 horizontal bars)	7a32
037	logical or (V shape)	7a33
040-135	as in standard ASCII	7a34
136	upward pointing arrow	7a35
137	left pointing arrow	7a36
140-174	as in standard ASCII	7a37
175	altmode (prints as lozenge)	7a38
176	right brace	7a39
177	rubout (hidden circumflex)	7a40